

Environment

Developing and Popularizing Environmentally Considered Products

The GS Yuasa Group believes that providing society with products that consider the impact on the environment (environmentally considered products) throughout the entire product lifecycle promotes sustainable consumption and advances market expansion of environmentally considered products. We consider it important to contribute to the creation of a sustainable society by strategically working on the development and popularization of products that foster a virtuous cycle of environment and economy. We also view the strengthening of market competitiveness by attaining competitive advantage as vital. The Group considers the environmental impact of all processes, ranging from the extraction of raw materials to the disposal and reuse of products. Further, we are committed to promoting initiatives for the development and popularization of products that demonstrate environmental performance and that meet the needs and expectations of society.

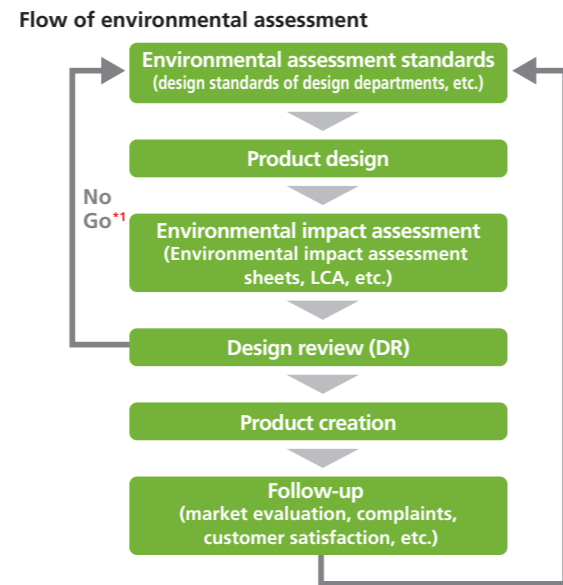
Designing environmentally considered products

The GS Yuasa Group's products have some impact on the environment during every stage of the product life cycle, from procurement and manufacturing to transportation, use and disposal. In order to reduce the environmental burden throughout the product life-cycle caused by the consumption of resources and the generation of greenhouse gases and waste, the Group is committed to improving the product performance through designing that considers selection of raw materials, ease of disassembly and segregation, energy conservation, and appropriate labelling.

Environmental assessment

For an environmental assessment of product design, design departments employ design standards and then evaluate the suitability of products in design review (DR) meetings based on environmental impact assessments of every stage of the product life cycle. When environmental impact standards are not met, we review the design standards and redesign the product. We use the expertise of several departments in addition to design departments, including engineering, marketing, procurement, quality and the environment, to make sure that the results of Design for the Environment (DfE) are communicated widely, which also maximizes their effectiveness.

- Environmental assessment items**
- 1 Energy conservation
 - 2 Volume reduction
 - 3 Recyclability
 - 4 Ease of disassembly
 - 5 Ease of separation processing
 - 6 Safety and environmental conservation
 - 7 Material selection
 - 8 Ease of maintenance
 - 9 Energy efficiency
 - 10 Reusability (life extension)

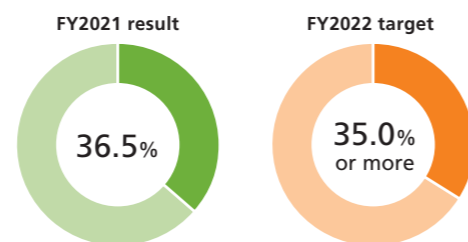


*1 If the environmental assessment standards are not met, assessment will be conducted again from the beginning.

Popularizing environmentally considered products

The GS Yuasa Group defines environmentally considered products as those products that help mitigate global warming, and we are actively working to develop and popularize such products. In fiscal 2019 we started incorporating into the Mid-Term Management Plan sales targets for environmentally considered products, making it part of our business strategy to work on climate change through the products we provide to customers.

Sales ratio of environmentally considered products



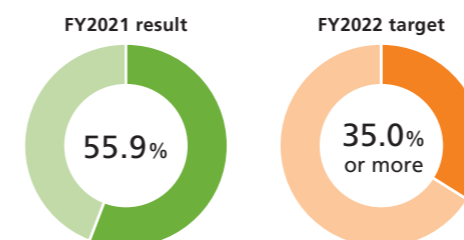
Examples of environmentally considered products

Business sector	Product
Automotive batteries	<ul style="list-style-type: none"> Lead-acid batteries for vehicles with start-stop systems (ISS: idling stop systems) <p>Batteries for ISS vehicles for improving gas mileage by allowing the engine to stop instead of idling to reduce fuel consumption</p>
Industrial batteries and power supplies	<ul style="list-style-type: none"> Power conditioners Lithium-ion battery <p>Effectively utilizing renewable energy</p>
Automotive lithium-ion batteries	<ul style="list-style-type: none"> Lithium-ion batteries for HEVs Lithium-ion batteries for EVs and PHVs <p>HEV batteries and EV batteries installed in electric vehicles and that contribute significantly to reducing greenhouse gases</p>

Increasing usage rate of recycled lead in products

The GS Yuasa Group is working to increase the usage rate of recycled lead—the primary material used in lead-acid batteries, one of our core products. In fiscal 2019 we started taking action to work toward a recycling-oriented society as part of our business strategy by incorporating into the Group's Mid-Term Management Plan targets for the usage rate of recycled lead contained in our lead-acid batteries. We have been taking action to recycle our post-use products by building and operating a recycling system based on extended producer responsibility (EPR). Going forward, we also plan to strengthen our efforts to promote the use of recycled materials in our products.

Ratio of recycled lead used as lead raw material in lead-acid batteries



Management of chemical substances contained in products

The GS Yuasa Group takes steps to provide products with minimal environmental burden based on the Chemical Substance Management Guidelines, which clarify the standards for chemical substances in products.

These guidelines are part of initiatives to examine chemical substances contained in materials delivered as stipulated in the GS Yuasa Group green procurement criteria. With these guidelines, we classify chemicals contained in our main materials, as well as the secondary materials and the parts used in the products that the Group makes and sells as either prohibited substances or managed substances.

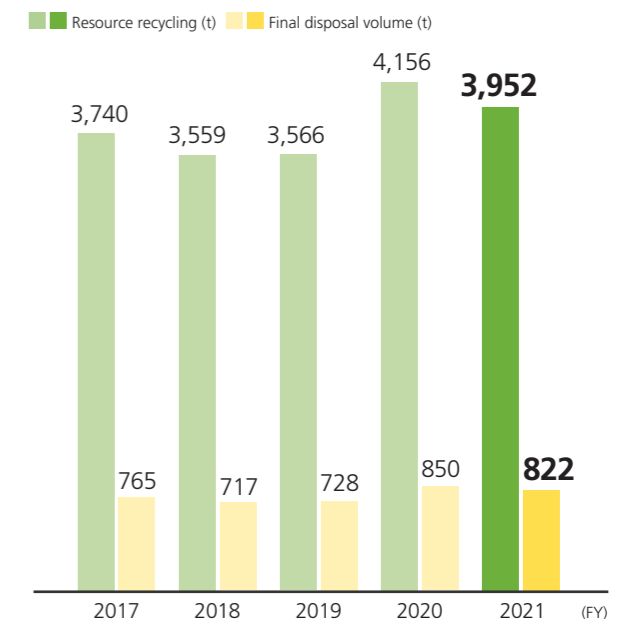
We work with our suppliers who supply main materials, auxiliary materials and components to identify and definitively manage the substances covered by the guidelines to raise the environmental quality of our products.

Resource recycling of used product

The GS Yuasa Group believes in the importance of creating and operating a system for recycling resources from used products to help create a recycling-oriented society. To achieve this goal, we are promoting initiatives for processing used products and resource recycling by using the wide area certification system*2.

*2 A wide-area certification system aims to involve the manufacturers of a product in the product's recycling and disposal once it reaches the end of its useful life. These systems make possible more efficient recycling and provide feedback on product design leading to easier disposal and reuse, while ensuring that discarded goods are disposed of properly.

Status of recycling and processing of used products



Environment

Contribution to Realization of Low-carbon Society (Promoting Environmental Protection)

The Group believes that it is important to continuously improve the energy management system associated with its business activities and promotes the reduction of greenhouse gas emissions in order to respond to the social changes accompanying the transition to a decarbonized society (such as requests from stakeholders to reduce greenhouse gas emissions, addition of carbon prices to the use of fossil fuels, and shift from fossil fuels to renewable energy).

In recent years, policies and targets aimed at carbon neutrality have been set forth in countries around the world with the aim of a shift to a sustainable decarbonized society. Going forward, we will continue to contribute to the realization of a sustainable society by suitably responding to global social issues and the needs of our stakeholders.

Reduction of CO₂ emissions

The Group promotes initiatives that contribute to a low-carbon, sustainable society as part of our business strategy by incorporating CO₂ emissions reduction targets in production activities around the world in the Group's Mid-Term Management Plan.

In fiscal 2021, we launched a company-wide project (Energy Saving and Renewable Energy Project) to promote the target of long-term reduction of CO₂ emissions (reduction by fiscal 2030 of 30% or more compared to fiscal 2018 levels). In this project, we are working on promoting measures to save energy, introducing solar power generation facility in our own factories, and procuring renewable energy from the market. In addition, we have established an energy management system at each business site and Group company and are promoting measures to save energy and initiatives for the introduction of renewable energy.

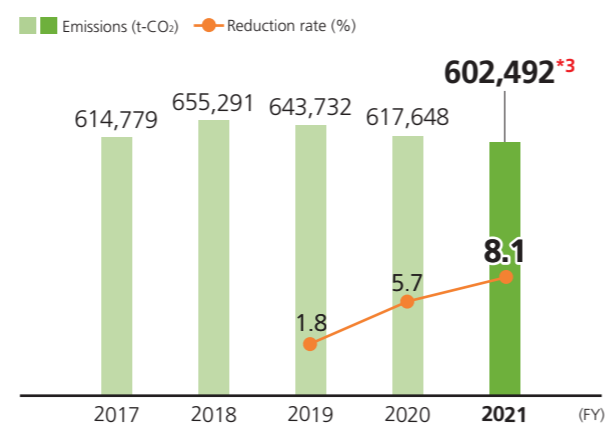
The reduction rate of CO₂ emissions in fiscal 2021 was 8.1% compared to fiscal 2018, achieving the annual target (of 4.0% or more). We believe that enforcing carbon management by utilizing renewable energy is the main reason for achieving the target. We are committed to continued promotion of company-wide initiatives in the future too.

*The Group manages CO₂ emissions in totality and not on a basis of intensity, with the aim of reducing greenhouse gas emissions consistent with the Paris Agreement.

Main Activities of the Energy Saving and Renewable Energy Project (Fiscal 2021)

Categories	Items	Main Initiatives
Promoting measures to save energy	Review of facility renewal standards	Formulate an effective facility renewal plan (utilization of facility management ledger)
	Improvement of production processes	<ul style="list-style-type: none"> ● Improvement of storage battery charging process ● Examining for improvement of charging facilities
	Efficient use of production facilities	Thorough periodic inspections of capacity utilization status
Introduction of solar power generation facility	Implementation of the plan to introduce solar power generation facility	Installed a solar power generation system at Blue Energy Co., Ltd. (Estimated reduction: 162t-CO ₂ / year)
	Survey on the introduction of solar power generation facility	Survey the feasibility of introducing equipment at all 11 business sites and Group companies in Japan
Procuring renewable energy from the market	Procuring electricity derived from renewable energy	Switching to 100% renewable energy for electricity used at the Kyoto Plant (FY2021 reduction volume: 19,201t-CO ₂)
	Procurement of electricity through renewable energy certificates (RECs)	Acquisition of domestic and overseas renewable energy certificates (FY2021 reduction volume: 22,536t-CO ₂)

Changes^{*1} in the Group's CO₂ emissions and the reduction rate^{*2}



*1 Compared to fiscal 2018.
 *2 We have been expanding the scope of application since fiscal 2018.
 *3 The amount of CO₂ emissions in fiscal 2021 is provisional.

Promotion of Effective Use of Water Resources (Promoting Environmental Protection)

The Group uses a large amount of quality fresh water for applications such as dilution of electrolytes, which are storage battery materials, and cooling of storage batteries in the charging process. Since water resources are important natural resources for the continuation of business activities, we believe it is important to work on ensuring quality freshwater and reducing water consumption. In addition, in the production process of lead-acid batteries, water containing harmful substances (such as lead) is discharged. We recognize the importance of properly treating wastewater so that such wastewater does not adversely affect the surroundings of our business sites.

Responding to water risks

By securing water necessary for business activities and through an appropriate response to water risks such as environmental pollution around business sites due to wastewater, the Group aims to promote water security initiatives as well as realize the sustainable use of water resources. To that end, we are working to prevent water risks from surfacing by taking measures such as efficient use of water and appropriate wastewater treatment.

Further, we are responding to climate change-related risks based on the TCFD recommendations with respect to risks of damage due to floods (such as the shutdown of our factories due to flooding and disruptions in the supply chain).

Examples of a water risk initiative

Category	Item	Example of Initiative
Water consumption	Reusing water	Recycling water used in the production process
	Wastewater management	Thorough implementation and management based on voluntary management standards that are stricter than regulatory standards; regular maintenance and management of wastewater treatment facilities
Treatment of wastewater	Preventing under seepage	Installation of dikes at wastewater treatment facilities and impermeability of floor surfaces
	Responding to emergency situations	Establishing response procedures and training for emergency situations in case of water leakage

TOPIC

Reuse of treated rainwater

At our Gunma Plant, we are working to reduce industrial water consumption by reusing water that has been properly treated by rainwater treatment facilities, such as backwash water of industrial water filtration equipment and rainwater. Through this initiative, we aim to reduce industrial water consumption by approximately 1,500 m³ / year or more.



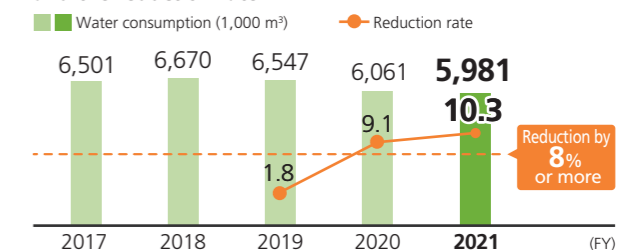
Rainwater treatment facility

Reducing water use

The Group is working to improve the efficiency of water use in conjunction with our business strategy by incorporating the target for reducing water consumption in production activities worldwide (reduction of water consumption by 8.0% or more by fiscal 2022, in comparison to fiscal 2018) in its Mid-Term Management Plan.

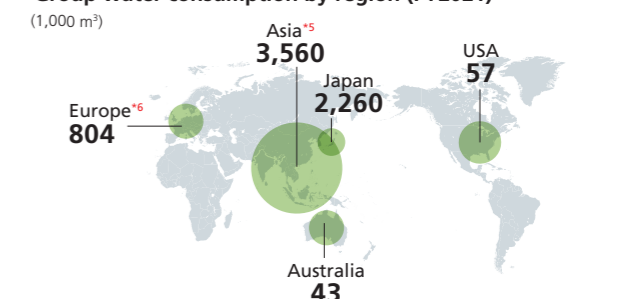
With the water consumption reduction rate in fiscal 2021 being 10.3% compared to fiscal 2018, the annual target (6.0% or more) could be achieved. It is believed that the major factor in achieving the target was continued promotion of water recycling at the production sites of Group companies in Japan and overseas. Going forward, we will continue promoting initiatives to control the quantity of water intake.

Changes^{*3} in the Group's water consumption and the reduction rate^{*4}



*3 Compared to fiscal 2018.
 *4 We have been expanding the scope of application since fiscal 2018.

Group water consumption by region (FY2021)



*5 Total of China, Taiwan, Vietnam, Malaysia, Indonesia, Thailand, India, and Pakistan
 *6 Total of UK, Hungary, and Turkey